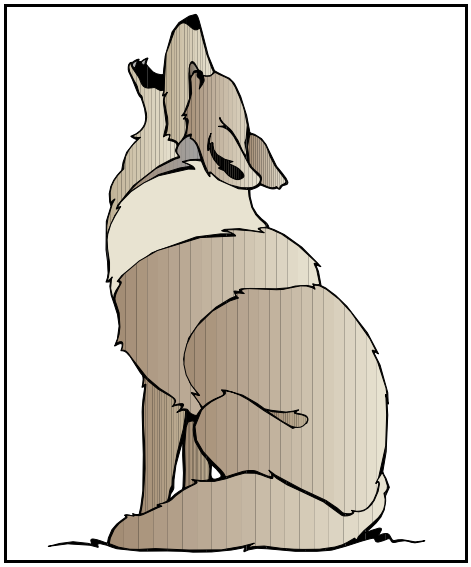

The

Spotter News for
Southeast Arizona

National Weather Service, Tucson, AZ
July 2001

AMBER Is More Than Just Old Sap

You've heard it before. Flash floods are the number one weather-related killer in the United States. On top of that they can be tough to forecast, so we're always looking for new tools and techniques to help. That's where the Areal Mean Basin Estimated Rainfall (AMBER) algorithm comes in.

AMBER is a software application that uses WSR-88D reflectivity data to estimate basin average rainfall accumulations. So, instead of viewing reflectivity data in the form of radar bins, AMBER maps those radar bins to river basins. The basins then reflect average precipitation amounts over a selected period of time (average basin rainfall or ABR). Those amounts can then be compared to preset flash flood guidance (or some other value input by the user) and serve as a valuable new tool in the decision making process to determine whether a flash flood warning is needed. Other graphics can also be generated from each selected basin to show rainfall intensity and duration (basin rate of accumulation or BRA).

We'll be working with 2 versions of AMBER this summer. One, a "standard" version, has been adapted for use on our AWIPS workstations. The second is the National Severe Storms Lab's version of AMBER and uses a new Quantitative Precipitation Estimation (QPE) algorithm developed by Bob Maddox. As is usually the case, timely input from you will be key.

Just to give you an idea of what we feel is important in a flash flood situation, here are the criteria we use to verify a flash flood warning:

1. Property damage (including road damage) or loss of life.
2. Government officials close a road, campground or other public access property due to conditions that are occurring as a result of convective weather.
3. Rapidly moving water, greater than 8 inches deep, moving across any road (including back country roads), campgrounds, etc. Rapidly moving is considered to be a brisk walking pace, or about 4 kts.
4. Wall of water (>= 12 inches) moving down a stream or wash (not mainstem such as the Santa Cruz River).

Of course, it is desirable to report events that lead to a flash flood before the flash flood actually occurs. So, keep those heavy rainfall, rising wash and street flooding reports

coming! Thanks!

Jim Meyer

January - June 2001 Weather Review

...a month-by-month summary...

January: The first month of the new millennium was cooler and wetter than normal across the Tucson metro area. Several storm systems affected the area during January and brought valley rain and mountain snow. A few of the storms were cold enough that snow occurred on the valley floor.

February: The cooler than normal weather that persisted for most of the winter continued during the month of February. Several storm systems affected the area, bringing periods of valley rain and mountain snow. Once again, a couple of these storms were cold enough to bring the snow level down to the valley floor.

March: The first half of the month continued the cool trend. By mid-month, high pressure took control of the weather with temperatures well above normal and no rainfall. The only significant storm of the month occurred on the 7th as a Pacific storm plowed through the area, producing widespread rain and snow. Rainfall totals of up to 1.25 inches were recorded around Tucson with the mountain peaks getting around a foot of snow.

April: An unusually active weather pattern brough a roller coaster ride on the thermometer and the eleventh wettest April on record. High pressure from March lingered into the first week. By the 5th and 6th, a strong storm brough widespread precipitation as well as wind gusts into the 40 to 50 mph range. After more high pressure, another strong storm swept through on the 20th and 21st with more wind, valley rain and mountain snow.

May: Strong high pressure dominated most of the month, as we had the 4th warmest May on record. Tucson International Airport hit 100 degrees for the first time in 2001 on the 8th, which was the eighth earliest occurrence on record.

June: The first half of the month was very warm and dry, with high temperatures generally between 100 and 108 degrees. The second half of the month was also quite warm (or hot if you prefer), and also saw more than a hint of monsoonal type moisture. Most of June's rain fell on the 20th and 21st when scattered thunderstorms (some severe) moved through the area. Average daily dewpoint values were above the 54 degree threshold on both days, but by the 22nd drier air had moved in and the dewpoint fell.

**********LATE BREAKING NEWS FLASH FOR JULY**********

The first of 3 consecutive days with an average dewpoint of 54 degrees or higher at Tucson International Airport occurred on July 3rd. Thus, that is the first monsoon day in Southeast Arizona. The earliest first monsoon day on record was June 17th of last year. The latest was on July 25th, 1987. The average first day is July 3rd.

More detailed reports can be found on our website at:
www.wrh.noaa.gov/Tucson/Climate/2000/2000.html
John Glueck

What Are Digital Forecasts?

Introduction

Over the last 10 years, the National Weather Service (NWS) spent $4.5 billion to modernize and restructure itself. This modernization included new Doppler weather radars, new surface and satellite observing systems, new computer and communication technology and new office facilities. Many of these improvements are seen today on the nightly news as local television stations make extensive use of these new data sets. Additionally, the Tucson NWS office has increased detail in their forecast products and significantly improved severe weather watch and warning services. Despite all of these improvements, much of the meteorological information available in a NWS office today is still not available to the general public. However, these circumstances are beginning to change as the implementation of digital forecasts begins.

Digital Forecasts for you Available Soon

The NWS is undergoing a nationwide effort to implement a new forecasting tool called the Interactive Forecast Preparation System (IFPS). This tool aids the forecaster in creating high resolution (2.5 km by 2.5 km) digital forecasts and tabular numerical products containing increased temporal resolution at many forecast locations. Much of the eastern United States has already implemented portions of the IFPS. Nationwide IFPS training for NWS employees is occurring as you read this article. This training will continue through 2002 with national digital forecasts being generated and disseminated from all NWS offices by 2003.

The Tucson weather forecast office is generating digital forecasts at this time. These forecasts are available at http://www.wrh.noaa.gov/tucson/gfe/gfe_main.html. The digital forecasts on the web site are displayed as a graphical image. These images provide a broad overview of the forecast parameters in southern Arizona, but do not provide forecast conditions for any specific location. To overcome this deficiency, an interactive web page will be activated this summer, which allows a person to retrieve forecast data for any location. These interactive features will allow full access to the digital data set created by the NWS meteorologists.

Summary

The National Weather Service office in Tucson creates digital forecasts on a 2.5 km by 2.5 km grid for southeast Arizona. These forecasts are produced daily at 3:45 AM and 3:45 PM by staff meteorologists and contain more detail than the official narrative forecasts. These digital data can be interactively retrieved for each grid point as new web software becomes available this summer. Check the Tucson web page at http://www.wrh.noaa.gov/tucson/gfe/gfe_main.html for the new digital forecasts in July or August.

Glen Sampson
Meteorologist In Charge

Spotter Training Tips for Summer Weather

The SKYWARN Spotter Program is a valuable part of the Tucson National Weather Service forecast and warning program. Often, weather spotters provide information that no amount of radar data, satellite imagery, or automated observation can provide.

Weather Spotting Criteria:

Heavy Rain (½ inch or more per hour, storm total of 1+ inches)

High Wind (estimated/measured 50+ mph)

Flooding (of any kind, road or structural damage, major bank erosion)

Hail (0.50 inch or greater diameter)

Any weather-related death, injury, or damage

Phone numbers for NWS spotters to use:
Tucson Metro Area: 670-5161
Outside Tucson: 1-800-238-3747

Please remember that your timely phone calls can be very valuable to the NWS staff. A phone call the day after a storm or a report of light rainfall does not have a lot of utility, but a report of 1" of rain in the past hour is very valuable.

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